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AUTHOR Reeves, Byron; Borgman, Christine
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ABSTRACT

The citation study technique, known as bibliometrics, was undertaken in this study to evaluate scholarly exchange among the core journals in the field of communication. The journals studied were "Central States Speech Journal," "Communication Research," "Journal of Broadcasting," "Journal of Communication," "Journalism Quarterly," "Public Opinion Quarterly," "Quarterly Journal of Speech," "Human Communication Research," and "Communication Monographs." From the number of articles published each year from 1975 through 1979, the following measures were constructed: the number of articles published, the number of citations made, the number of citations made per article, and the ratio of citations received to citations made. Results indicated that (1) most citations were to other core communication publications, (2) despite an apparent trend toward theoretical integration in some areas of communication research, there remained a rather distinct grouping of interests, and (3) the "Public Opinion Quarterly" was the only journal that did not reciprocate citations with other communication publications. (HOD)

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A Bibliometric Evaluation of Core Journals in Communication Research

Byron Reeves

Mass Communication Research Center
University of Wisconsin-Madison 53706

Christine Borgman

Institute for Communication Research
Stanford University
and
OCLC, Inc.
Dublin, Ohio

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Christine Borgman

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A Bibliometric Evaluation of Core Journals in Communication Research

Publication and citation accounting techniques have been used in the assessment of scientific activity for at least 50 years (Narin, 1977). Studies have been conducted for two purposes; (1) as tools for the librarian in evaluating particular collections, and (2) to evaluate scientific activity. The citation study technique, known as bibliometrics, has proved valuable for both purposes. The present research was undertaken to evaluate scholarly exchange between the core journals in the field of communication. The study assumes that a meaningful relationship exists between a scholarly paper and some other paper that it cites or that cites it. A journal reference is an indication that an author has read an article and thinks that it is important enough to bring to the attention of other scholars. Consequently, the more often a journal's articles are cited, the more researchers in a given field acknowledge that journal as a transmitter of important scientific information.

In addition to providing evaluative information about communication journals, this study also viewed citation links between journals as important indicators of communication behavior per se. Communication researchers must tolerate one of the worst cases of information scatter that can be found in the sciences (Paisley, 1972). The interdisciplinary nature of research activity and training ties the field not to one but several information bases. Further, these information bases are most frequently tied to disciplines (e.g. psychology, sociology anthropology) which have different traditions for segmenting and indexing their research. Paisley (1972) offered a quote from a 1966 paper by Schramm as a summary of the problem of information scatter in communication:

> "Every discipline concerned with human society and human behavior must necessarily be concerned about communication. It is no accident that (the past 15 years of communication research) has involved psychologists, sociologists, anthropologists, political scientists, economists, linquists, educators, and mathematicians, as well as the comparatively small group of individuals who think of themselves primarily as communication scholars. This is salutary because the

> methods and insights of all these disciplines can be brought to bear on the study of communication, but on the other hand it requires any student of communication to look in many places for his basic material. A student of pre-Cambrian geology, to take a contrasting example, can be reasonably sure that the chief papers in the field will be written by geologists, that they will be listed together and will build on one another; but a student who wants to comprehend the sum total of existing knowledge of human communication must search at least half a dozen scholarly fields (an underestimate), and he can be fairly sure that the articles will go off in many directions and will not all build on one another. This is one of the reasons why a unified and systematic theory of human communication has been slow to emerge."

Parker, Paisley, and Garrett (1966) first used bibliometric analysis in an attempt to describe empirically the information scatter problem. They analyzed 9,900 citations appearing in 17 academic journals from 1950 to 1965 and found that the citations were scattered across 714 cited journals. In other words, these 17 journals (which included six communication journals published at the time -- Journal of Communication, Journal of Broadcasting, Public Opinion Quarterly, Journalism Quarterly, Journal of Advertising Research, and Audio-Visual Communication Review)[1] cited 714 separate journal titles. In an analysis of the citation connections between the same journals, it was shown that the separate journals were actually unconnected subliteratures. Cluster analyses found that each of the journals belonged to separate groups as indicated by several empty cells in the journal-by-journal citation matrix.

The first question in our study was about changes in the structure of the communication literature. New areas of communication research have been introduced, academic units have been created or reorganized, and new journals devoted to communication research have begun. Has the information scatter problem been eliminated? Has the dependence of communication researchers on other literatures increased or decreased? What can be said about communication research as a unified literature?

Second, what can be said about the new communication journals established in the last ten years? How have these journals defined themselves as determined

by their citation links with other literatures? How important are these journals for scholars publishing in other communication journals for scholars publishing in other communication journals and in other social science journals? What are the links between these new journals and the more established journals? Do the new journals have unique roles in the field or do they merely supplement older journals? What evidence is there that new journals are needed or that older journals should establish different orientations? Are there needed links between areas of communication research that a new journal could provide?

Third, the organization of academic departments in communication is currently being discussed in several universities and has been accomplished recently in others. Does the exchange of scholarly information have any bearing on which units should be combined and on what form the larger units should take? What is the nature of the scholarly exchanges that take place, for example, between speech departments and schools of journalism, or between interpersonal researchers and mass media researchers?

Bibliometric analyses have been shown to be useful for these purposes in other research areas (Garfield, Maline and Small, 1978). These same strategies have also been used to determine a core set of journals in areas like communication (Subramanyam, 1976). However, most authors who discuss the application of citation analyses to journal evaluations and academic exchange are quick to point out the limitations of these data. Like most evaluative information, citation data should not be applied without consideration of other input, both subjective and objective. A growing body of literature does suggest that citation data can provide a relatively objective evaluation for journal editors, the academic associations that publish journals, and the researchers who contribute to the journals, as well as provide information about new research specialties and a determination of the interdisciplinary character of research programs and projects (Garfield, Malin and Small, 1978).

Methods

Most of the data required for bibliometric analysis are available in the Social Science Citation Index (SSCI) and the yearly summary analyses reported in the Journal Citation Reports (JCR). The 1979 JCR, for example, was based on 8 million citations from the references of over 700,000 articles published in the 1979 issues of 6,000 journals. Although JCR is mostly concerned with citations from the SSCI, references to articles catalogued in the Science Citation Index and the Arts and Humanities Citation Index are also included. This alleviates citation problems for multidisciplinary research areas such as communication. The following are the most essential data used to create the JCR: (1) titles and years of publication of social science journals cited during a given year and the titles of the journals which cited them; and (2) titles of articles in a given year and the titles and years of all journals which they cited during that year. From this information several different descriptive statistics are computed which describe journal performance as well as interaction among journals.

The statistics reported in the JCR apply to these basic questions:[2]

1. How often has a journal been cited?

2. Does the material cited in a particular journal come primarily from older articles, new articles, or does the citation pattern show chronological consistency?

3. What journals have been cited by the particular journal?

4. How often has a journal cited other journals?

5. Is the journal citing old or new material?

6. What proportion of these citations are self-citations? In summary, who uses a particular journal, how frequently, and for what purpose? With particular reference to the field of communication, how much cross-citation exists within the field of communication and is there a strong allegiance to communication research or do strong ties exist to other disciplines?

The first step in the analysis was to select a core set of journals. Initially, nine journals were selected which were (1) referenced by SSCI, (2) concerned primarily with communication research and, (3) in the judgment of an informal sample of members, were consulted and used as a publication outlet by researchers in the various divisions of the International Communication Association. Later empirical analyses showed that these journals were clearly the most influential in the field. The journals used were:

Central States Speech Journal (CCSJ)

Communication Research (CR)

Journal of Broadcasting (JOB)

Journal of Communication (JOC)

Journalism Quarterly (JQ)

Public Opinion Quarterly (POW)

Quarterly Journal of Speech (QJS)

Human Communication Research (HCR) [3]

Communication Monographs (Speech Monographs) [4]

The amount of data collection was limited by the coverage of the JCR. The first JCR for SSCI was 1977 and the latest available was 1979 (the 1980 issue will be available in late 1981 and will eventually be added to the data set). The following data were available from the JCR for each of the journals covered (with the exception of HCR):

1. The total number of citations made by a journal to all other sources.

2. The total number of citations made by the journal to each of the nine other journals studied.

3. The total number of citations received by a journal from all other sources covered by SSCI.

4. The total number of citations received by a journal from each of the nine journals studied.

For the 1977 through 1979 issues of Human Communication Research, items 1, 2, and 4 were collected by hand. Item number three could not be obtained without the use of the full universe of SSCI data. There is also a bias in the data for HCR. JCR reports cites made to or received by a specific journal only if the journal makes (or receives) 6 or more citations in a year. Citations contributed by a journal which total fewer than 6 are put into an "other" category and are included in the total number of citations made (or received) for the year. The result is that item 1 above should be the same for the JCR data and the hand-tabulated data, but items 2 and 4 may be more conservative in the JCR data.

For all nine journals, the number of articles published each year from 1975 through 1979 were collected. From these data, the following measures were constructed:

1. The number of articles published (Table 1).
2. The number of citations made (Table 1).
3. The number of citations made per article (Table 2).
4. The ratio of citations received to citations made (Table 2). This number indicates a journal's importance based on the relative balance of outgoing to incoming citations. The higher the ratio, the more a journal is used.
5. The ratio of self-citations received to all citations received (Table 2).
6. The percentage of citations to other core communication journals (Table 3).
7. The percentage of citations to other core communication journals that are self-citations (Table 3).
8. The percentage of all cites that were self-citations (Table 3).
9. The journal/year units. This value indicates the number of journal issues from which citations to core communication journals are taken.

10. A discipline impact factor (DIF) (Table 4). This value was first proposed by Hirst (1978) as a measure of a journal's importance within a set of core journals. For each journal J, the DIF equals the number of citations to 1975-1979 issues of journal J made by 1977-1979 issues of all nine core communication journals (including self-citations), divided by the total number of articles published in J during 1975-1979. The DIF is similar to the impact factor (a measure from the JCR discussed below), but uses only the core communication journals.

11. A matrix of citations made by citations received (Table 5). This shows the pattern of citations among the core journals. The diagonal shows the self-citations for each journal.

Two additional statistics were selected from the available JCR statistics:

12. An impact factor indicates the frequency with which the average cited article in a journal has been cited in a given year (Table 4). This statistic is computed for each journal and is the ratio of the citations made to the last two years of the journal, to the number of articles published in those two years. This yields an average number of citations per article. This ratio tends to discount the advantage of large, established and frequently issued journals over those that are small (in terms of circulation), new, and issued fewer times per year. The higher the impact factor, the more likely it is that articles from a particular journal are being used by other scholars.

13. The journal half-life statistic indicates the historical importance of a journal (Table 4). The specific value for journal half-life is the number of journal publication years, from the current year back, whose articles account for 50% of the total citations received in a given year. A short half-life implies that most citations to a particular journal were to the most recent years of the journal, whereas a longer half-life shows that recent citations

to a journal emphasize older volumes of the journal. For example, a half-life of 3.7 means that 50% of the citations to a particular journal in a given year were to issues of the journal that are at least 3.7 years old. Half-life data were available for only five of the journals and only for two years, 1978 and 1979.

In an attempt to identify the next tier of relevant journals in communication, we generated a list of all journals cited by any of the nine core communication journals in the period covered (1977-1979). To be considered, a journal had to be cited more times than the minimum required for listing by title in the JCR. These data produced a list of 54 journals from the JCR data and 98 journals from the list for HCR. The two lists combined yielded 134 non-redundant journal titles.

Results

There was little variance in the number of articles published from 1975 to 1979 for each of the nine core journals (Table 1). There was, however, considerable variance in the average number of articles per journal over the same period. The mean number of articles published varied from 30.2 (QJS) to 101 (JQ). There were also considerable differences in the number of citations made in each of the journals. The mean number of citations per article for 1977 to 1979 ranged from 11.4 (JOC) to 35.3 (HCR). The measure of citations received relative to citations made shows that with one exception (POQ), communication journals make far more references than they receive, even when self-citations are included in the tally (although data are missing for Communication Monographs and Human Communication Research). Exluding POQ, communication journals on the average make five citations for every one that they receive (Table 2).

Table 3 shows that on the average, 13% of the citations in the core journals are to other communication journals (including self-citations). The range is

from 10% for QJS to 20% for JQ. While this represents little variance in each journal's reliance on the other core communication publications, there is a great deal of variance in the percentage of the communication citations that are self-citations (column 2, Table 3). For example, while only 13% of the cites in POQ are to other communication journals, 79% of those cites are to POQ. Conversely, CSSJ, which has about the same percentage of citations to other communication journals as POQ, cites itself only 9% of the time. The average percentage of self-citations is 44% across the nine communication journals. The ratio of self-cites to all citations made is shown in column 3 of Table 3 and ranges from 1% (CSSJ) to 14% (JQ).

The two impact factors (Table 4) indicate a journal's influence outside of the field of communication (the impact factor reported by the Journal Citation Report) and influence specific to communication (the Discipline Impact Factor computed from just the nine communication journals). The two sets of values show different influence patterns as indicated by the low rank-order correlation between the scores ($r=.22$, $n=8$, n.s.). From the available data, HCR is the most influential journal within the field, although, unfortunately, it is impossible to compare this result with an external rating. The leading journal in external influence was POQ. Interestingly, POQ was one of the lowest rated journals when just communication journals were considered. JOC and CR were also rated several ranks higher in the external ranking than in the internal ranking.

The DIF statistic provided empirical support for selection of the nine core journals in this study. There were no other journals (of those analyzed by the JCR) that had higher DIF scores. Of the 90 other journals that were cited by any of the core communication journals, only 22 received eight or more citations. A DIF score was computed for each of these journals for which the number of articles published in 1975-1979 could be determined. While the DIF scores for the core journals ranged from 1.36 to 0.27, the highest score for a non-core

journal was 0.18 for the American Political Science Review. The APSR received 45 citations from the core journals, but they represented only 5 journal/year units.[5] The other journals most cited by the core communication journals are listed in Table 5.

Journal half-life data were available for only five of the core journals (Table 4). While these data are too limited to draw any well-substantiated conclusions, it is of note that POQ has a half-life of greater than 10 years (the maximum computed by JCR), while the other journals have considerably shorter half-lives. This suggests that citations to POQ are to older articles (on the average, over 10 years old), whereas citations to JOC, for example, are to more recent issues. Unfortunately, these data could indicate that a journal has either very important older articles or has not published recent articles that have been heavily cited.

Data from the matrix of journal-to-journal citations shown in Table 6 were plotted in Figure 1. The journal network was constructed using the NEGOPY criteria for analyzing communication links between n nodes (Rogers and Kincaid, 1981). Only those links greater than the mean link (excluding diagonal values) were plotted. The different sized lines indicate the strength of the citation links. The exact values for self-citation and strength of the links are indicated in Table 4. Links without arrows are bi-directional.

The network analysis showed that the nine journals fell into two groups; speech-oriented journals (QJS, CCSJ, and CM) and mass communication journals (JQ, CR, POQ, JOB and JOC), with HCR as the bridge between the two groups. Although there are exceptions for specific journal articles, a majority of the articles published in the two groups are consistent with these labels. The speech journals have strong links to each other, but no links to other communication journals except HCR. CM is the only journal with strong links to HCR and is the only reciprocated link to HCR. HCR, in turn, has links to JOC and

POQ, but these links are not reciprocated. Within the mass communication cluster, it was found that all journals cite POQ, but POQ reciprocates none of the links. JQ and JOC each have links to four other journals and links from three.

Discussion

Compared to the data from the Parker, et al., study of citations from 1950 to 1965, these data indicate that communication researchers are less dependent on other social science journals in the conduct of their research. A greater percentage of citations in the last five years are citations to other core communication publications. This difference is likely even greater than a comparison of present and past research would indicate because the past study used several non-communication journals in the creation of a core list.

Despite an apparent trend toward theoretical integration in some areas of communication research, there remains a rather distinct grouping of interests. Perhaps the administrative organization of scholars in communication is more influential in determining communication patterns than substantive similarities in the content of scholarship. It is also possible that despite newer departments of communication, which tend to combine research interests across the two network groups, a substantial influence remains from more traditional interests such as rhetoric and journalism. Academic associations such as the Speech Communication Association and the Association for Education in Journalism may also influence these groups.

Interestingly, the one journal which bridges these groups (HCR) is a newer journal published by an association with newer ties to the more traditional divisions in communication research. It is the journal where interpersonal and mass communication interests are most likely to meet, although by following the directional links, mass communication researchers are more likely to see the speech communication material than vice versa. The other important

journal in communication is POQ. If an author wanted the largest possible audience (in terms of citations), POQ would be the journal of choice, as well as the journal most likely to gain recognition for an author outside of communication. It is, however, the only journal that does not reciprocate citations with other communication publications. Of 2224 citations made from 1977 to 1979, only 60 were to any of the other eight communication journals.

While these data are relevant to publication policy issues such as the creation of new journals and the grading of current journal practices, the data do not suggest exactly what the policies should be. In light of the two-group network found here, a new journal might propose to further bridge the groups or define an audience within a single group. Established journals could alter editorial decisions for either of the same purposes. For purposes of grading existing journals, it is worth noting that a large amount of variance exists in the use of different publications. While the number of citations that articles receive is certainly not a sufficient reason to question the overall contribution of a journal, it may be worth considering the costs of maintaining some journals. There are several instances of entire journal issues that have not received even one citation five years after publication.

The primary use of these bibliometric data should be to evaluate the relative contribution of each journal. It is difficult, however, to attach an absolute value to most of the statistics. For example, an impact factor of 0.43 (the average for communication journals) means that in a given year, the average journal article was cited less than once. But the qualifications on this number are important. First, the statistic only applies to other journals referenced by SSCI or the similar indexes for the physical sciences and humanities. It does not include citations in convention papers, book chapters, unpublished manuscripts, books, technical reports, grant proposals and other documents. Second, it is possible (although from past data unlikely) that

existing issues of particular journals will become more important in the future.

It is also worth noting that communication journals do not do as well as core journals in related social sciences. For example, the average impact factor for the top ten journals in psychology is 3.54 compared to 0.43 in communication.[6] The average impact factor for the 12 journals most cited outside of the core communication journals is 1.86. On the other hand, there is evidence that communication journals provide important links between larger literatures. While the average percentage of citations to core journals in communication is only 13%, the majority of citations in psychology journals (and journals in most other social sciences) are to other core journals in the same discipline. These data suggest that the information scatter problem has lessoned somewhat, but communication research still remains very much an interdisciplinary activity dependent on a wide range of information bases.

Notes

1. The non-communication journals used in this study were: American Behavioral Scientist, American Documentation, American Educational Research Journal, American Psychologist, American Sociological Review, Behavioral Science, Journal of Personality and Social Psychology, Journal of Educational Psychology, Journal of Verbal Learning and Verbal Behavior, Psychological Bulletin, and Sociometry.

2. These questions were taken from the Journal Citation Reports, 1979, p. 7a.

3. Human Communication Research was not covered by Social Science Citation Index.

4. Speech Monographs became Communication Monographs after the 1975 volume. Data were merged where available and appropriate.

5. The journal/year unit is the set of citations from one year for one journal. This index was developed to indicate when a journal cited heavily by another journal in a single volume was having a disproportionate effect on the DIF. A relatively low value indicates that citations come from fewer volumes of the citing journal; a high value indicates that several volumes of the citing journal are responsible for the overall number of citations.

6. The top ten journals in psychology were: Psychological Review, Cognitive Psychology, Annual Review of Psychology, American Psychologist, Psychological Bulletin, Journal of Experimental Psychology (animal behavior and general titles), Psychosomatic Medicine, Journal of Personality and Social Psychology and Journal of Abnormal Psychology. It is interesting to note that the impact factors for 6 of the 10 titles have declined since 1977. Scores for three journals were stable and scores for one, Psychological Bulletin, increased.

Table 1. Number of Articles Published and Citations Made in Nine Core Communication Journals

	Number of Articles Published[1]							Citations Made[2]				
Core Journals	1975	1976	1977	1978	1979	Total	$\bar{X}$	1977	1978	1979	Total	$\bar{X}$
Cent States Spch J	38	41	30	24	29	162	32.4	617	485	874	1976	659
Comm Mono/Spch Mono[3]		31	33	32	26			971	758	677	2406	802
Communication Res	25	22	21	23	20	111	22.2	509	533	543	1585	528
Human Comm Res[4]	28	28	34	31	34	155	31	997	1219	1282	3498	1166
J of Broadcasting	34	43	37	35	35	184	36.8	673	1318	600	2591	864
J of Communication	83	89	105	99	94	470	94	1252	1060	1073	3385	1128
Journalism Quar	103	101	110	107	84	505	101	1981	1474	1733	5188	1729
Public Opin Quar	28	47	47	54	46	222	44.4	645	1010	569	2224	741
Quar J of Speech	32	32	30	28	29	151	30.2	1041	980	918	2939	980

[1] Includes review and non-review articles.

[2] Includes self-citations.

[3] Speech Monographs became Communication Monographs after the 1975 volume. Data were merged where available and appropriate.

[4] Not covered by Social Science Citation Index.

Table 2. Citations Per Article, Ratio of Citations Received to Citations Made for Nine Core Communication Journals

	Citations/Article[1]				Cites Rec'd/Cites Made[1]			
Core Journals	1977	1978	1979	$\bar{X}$	1977	1978	1979	$\bar{X}$
Cent States Spch J	20.5	20.2	30.1	23.8	0.07	0.11	0.06	0.089
Comm Mono/Spch Mono[2]	29.4	23.6	26.0	26.4				
Communication Res	24.2	23.2	27.1	24.8	0.15	0.10	0.16	0.14
Human Comm Res[3]	29.3	39.3	37.7	35.3				
J of Broadcasting	18.1	37.6	.7.1	24.2	0.17	0.12	0.25	0.18
J of Communication	11.9	10.7	11.4	11.4	0.18	0.29	0.34	0.27
Journalism Quar	18.0	13.7	20.6	17.2	0.29	0.35	0.32	0.32
Public Opin Quar	13.7	18.7	12.3	15.1	1.82	0.88	1.33	1.34
Quar J of Speech	34.7	35.0	31.6	33.8	0.17	0.18	0.29	0.21

[1] Includes self-citations.

[2] Speech Monographs became Communication Monographs after the 1975 volume. Data were merged where available and appropriate.

[3] Not covered by Social Science Citation Index.

Table 3. Citation Ratios for Nine Core Communication Journals for 1977-1979

	Core Journal Cites/All Cites made	Self-Cites/ All core Journal	Self-Cites/ All cites made	Journ/ year unit[3]
Central States Spch J	.14	.09	.01	10
Comm Mono/Spch Mono[1]	.17	.42	.07	21
Communication Res	.11	.27	.03	8
Human Comm Res[2]	.12	.34	.04	11
J of Broadcasting	.13	.34	.04	15
J of Communication	.11	.35	.04	18
Journalism Quar	.20	.70	.14	18
Public Opin Quar	.13	.79	.10	13
Quar J of Speech	.10	.65	.06	12

[1] Speech Monographs became Communication Monographs after the 1975 volume. Data were merged where available and appropriate.

[2] Not covered by Social Science Citation Index.

[3] The journal/year unit is the set of citations from one year for one journal. This index was developed to indicate when a journal cited heavily by another journal in a single volume was having a disproportionate effect on the DIF. A relatively low value indicates that citations come from fewer volumes of the citing journal; a high value indicates that several volumes of the citing journal are responsible for the overall number of citations.

Table 4. Impact Statistics and Journal Half-Life for Nine Core Communication Journals

Core Journals	Impact Factor[1] 1977	1978	1979	$\bar{X}$	DIF[2]	Half-life[4] 1978	1979	$\bar{X}$
Cent States Spch J	0.11	0.24	0.24	0.20	0.27			
Comm Mono-Spch Mono[5]	0.06	0.02	0.43	0.16	0.69			
Communication Res	0.70	0.42	0.50	0.54	0.50			
Human Comm Res[6]					1.36			
J of Broadcasting	0.32	0.44	0.40	0.39	0.55	5.3	5.5	5.4
J of Communication	0.39	0.52	0.44	0.45	0.37	4.0	4.6	4.3
Journalism Quar	0.56	0.28	0.33	0.29	0.54	8.9	7.7	8.3
Public Opin Quar	1.17	0.78	0.60	0.85	0.49	10	10	10
Quar J of Speech	0.42	0.66	0.68	0.59	0.85	6.4	7.3	6.8

[1] The IMPACT FACTOR measures the frequency with which the average cited article in a journal has been cited in a given year. This statistic is computed for each journal, and is the ratio of the citations made to the last two years of "Journal J" to the number of articles published in those two years. This yields an average number of citations per article. This ratio tends to discount the advantage of large, established, and frequently issued journals over those that are small (in terms of circulation), new, and issued fewer times per year. The higher the impact factor, the more likely it is that articles from a particular journal are being used by other scholars.

[2] Includes self-citations.

[3] For each journal J, the DISCIPLINE IMPACT FACTOR (DIF) equals the number of citations to 1975-1979 issues of journal J made by 1977-1979 issues of all nine core communication journals (including self-citations) divided by the total number of articles published in J during 1975-1979.

[4] JOURNAL HALF-LIFE measures the historical importance of a journal. The specific value for journal half-life is the number of journal publication years from the current year back whose articles account for 50% of the total citations received in a given year. A short half-life implies that most citations to a particular journal were to the most recent years of the journal, whereas a longer half-life shows that recent citations to a journal include older volumes of the journal. For example, a half-life of 3.7 means that 50% of the citations to a particular journal in a given years were to issues of the journal that are at least 3.7 years old.

[5] Speech Monographs became Communication Monographs after the 1975 volume. Data were merged where available and appropriate.

[6] Not covered by Social Science Citation Index.

Table 5. Citation and Impact Data for Journals Most Often Cited by Nine Core Communication Journals (1977-1979)[1]

	Total cites Received	# of source publications	DIF[2]	$\bar{X}$ impact factor[3]	Journal/year units[4]	Rank order by # of citations	Rank order by DIF	Rank order by IF
m Polit Sci Rev	45	250	.180	1.98	5	3	1	6
Marketing Res	23	329	.070	1.27	5	4	2	9
exas Law Review	10	143	.070		1	17	2	
m Sociol Rev	19	302	.063	3.37	7	7	4	2
Personality and Soc Psy	50	943	.053	2.39	12	1	5	4
sych Bulletin	18	351	.051	3.67	5	8	6	1
m J Polit Sci	9	206	.044	1.08	2	20	7	10
olumbia Journalism Review	10	239	.042	0.16	4	17	8	13
Appl Psych	17	592	.029	1.58	4	9	9	7
m J Sociol	8	323	.025	2.04	4	21	10	5
mer Psychol	10	467	.021	3.30	3	17	11	3
hild Devel	16	934	.017	1.28	6	10	12	8
sych Rept	13	2539	.005	0.25	4	12	13	12
hil & Rhetoric	22				3	5		
S Spch Commun	12				3	13		
Media Law Reptr	11				1	15		
Journalism Educator	20				1	6		
Mass Comm Review	11				1	15		
Journalism History	14				2	11		
Polit Comm	12				1	13		
Editor & Publ	49				6	2		
Public Relations Review	8				2	22		

Footnotes for Table 5

[1] The JCR does not reference the last nine journals listed in the Table.

[2] For each Journal J, the DISCIPLINE IMPACT FACTOR (DIF) equals the number of citations to 1975-1979 issues of journal J made by 1977-1979 issues of all nine core communication journals (including self-citations) divided by the total number of articles published in J during 1975-1979.

[3] The IMPACT FACTOR measures the frequency with which the average cited article in a journal has been cited in a given year. This statistic is computed for each journal, and is the ratio of the citations made to the last two years of "Journal J" to the number of articles published in those two years. This yields an average number of citations per article. This ratio tends to discount the advantage of large, established, and frequently issued journals over those that are small (in terms of circulation), new, and issued fewer times per year. The higher the impact factor, the more likely it is that articles from a particular journal are being used by other scholars.

[4] The journal/year unit is the set of citations from one year for one journal. This index was developed to indicate when a journal cited heavily by another journal in a single volume was having a disproportionate effect on the DIF. A relatively low value indicates that citations come from fewer volumes of the citing journal; a high value indicates that several volumes of the citing journal are responsible for the overall number of citations.

Table 6. Matrix of Citations Made by Citations Received for Nine Core Communication Journals[a]

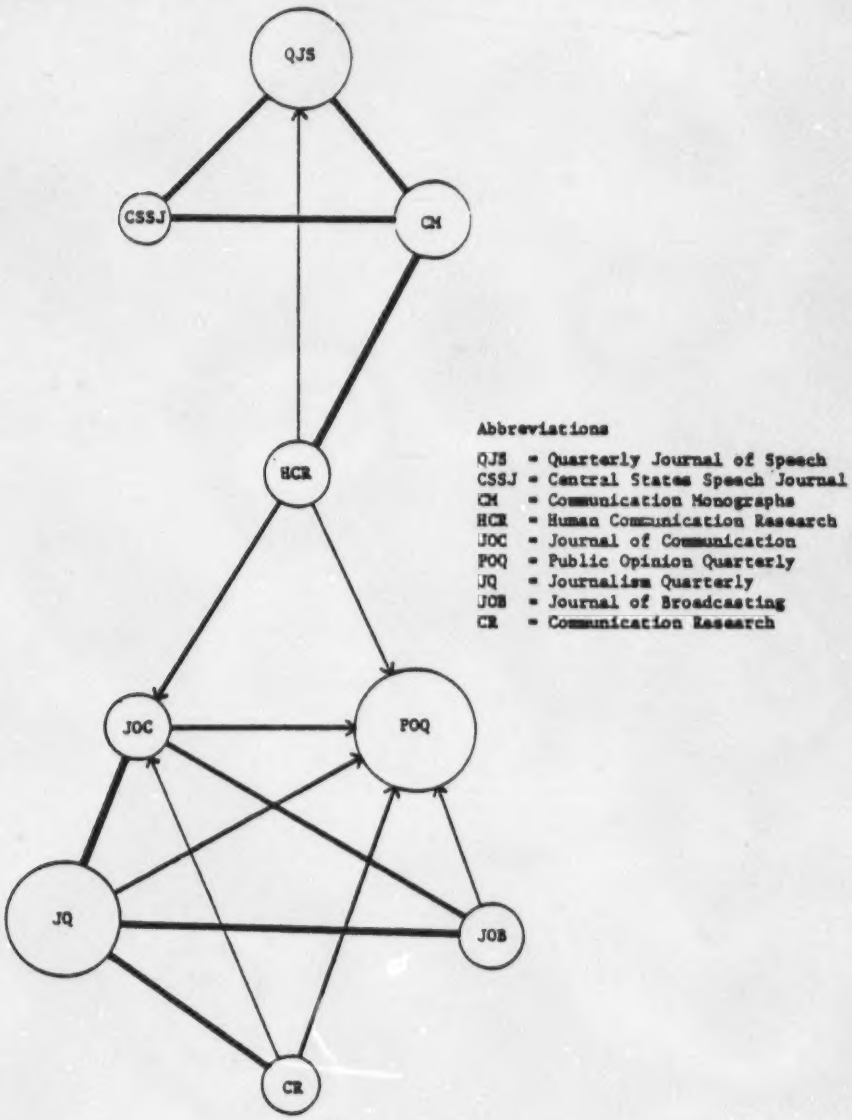
Citing Journal (1977-1979)	Cent States Spch J	Comm Mono/Spch Mono	Communication Res	Human Comm Res	J of Broadcasting	J of Communication	Journalism Quar	Public Opin Quar	Quar J of Speech
	Cited Journal								
Cent States Spch J	26	72	1	15	1	18	0	8	133
Comm Mono/Spch Mono	24	166	5	55	4	14	11	14	104
Communication Res	0	1	48	6	11	23	43	44	0
Human Comm Res	16	125	11	144	6	52	13	26	31
J of Broadcasting	3	12	7[b]	0	113	32	134	33	0
J of Communication	3	4	8	0	39	127	104	77	3
Journalism Quar	3	13	29	0	70	58	731	127	5
Public Opin Quar	0	16	3	0	4	15	22	224	0
Quar J of Speech	25	47	0	15	0	9	5	0	185

a) Data from the Social Science Citation Index were combined for the three available years (1977-1979). Values on the diagonal represent self-citation rates.

b) This value was extrapolated because of missing data in the Social Science Citation Index.

Figure 1

Network Plot of Citation Links Between Nine Core Journals in Communication[1]



The network plot was done using the NEGOPY criteria for analyzing communication links between n nodes. The complete matrix used for this analysis is in Table 5. Only those links greater than the mean link (excluding diagonal values) were plotted. The different size circles indicate differences in self-citation rates. The different size lines indicate the strength of the citation link. The exact values for self-citation and strength of links are indicated in Table 3. Links without arrows are bi-directional.

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